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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/711,556

09/24/2004

Patrick J. McGinnis

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02/24/2005

INTERNATIONAL BUSINESS MACHINES CORPORATION

DEPT. 18G

BLDG. 300-482

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HOPEWELL JUNCTION, NY 12533

EXAMINER

NGUYEN, JIMMY

ART UNIT

PAPER NUMBER

2829

DATE MAILED: 02/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/711,556 | MCGINNIS ET AL. | |
| | Examiner | Art Unit | |
| | Jimmy Nguyen | 2829 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>0904</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 – 3, 6 – 13, 16 – 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Lo (US 6,462,814).

As to claims 1, 11, Lo disclosed (figs 1 - 3) a system and a method for critical parameter analysis (CPA) of a semiconductor device (DUT, 12), comprising:

a focused optical beam scanning device (16, fig 3) for scanning and imaging the semiconductor device (DUT, 12) and for imparting light energy to illuminated portions of the semiconductor device (DUT, 12) during scanning,

automated test apparatus (ATE, 62, fig 1) for providing predefined stimulus to the semiconductor device (DUT, 12) and for comparing responses from the semiconductor device (DUT, 12) against a set of predefined expected responses,

and

a signal generator (test vectors, column 4 lines 46- 47) for providing an output signal indication when the automated test apparatus (ATE, 62) detects a difference between the responses from the semiconductor device (DUT) and the predefined expected responses, wherein said focused optical beam scanning device and said ATE are adapted such that both operate upon the semiconductor device simultaneously.

As to claims 2, 12, Lo disclosed (figs 1 - 3) a system wherein semiconductor device (DUT, 12) is fixtured such that ATE (62) connections to the device (12) are made within a scanning chamber of the focused optical beam scanning device (16).

As to claims 3, 13, Lo disclosed (figs 1 - 3) a system wherein focused optical beam scanning device (16) is a laser scanning microscope (LSM).

As to claims 6 - 8, 16 - 18, Lo disclosed (figs 1 - 3) a system wherein predefined stimulus is provided to automated test apparatus (ATE, 62) in the form of a set of test vectors (column 4 lines 45 – 47).

As to claim 9, Lo disclosed (figs 1 - 3) a system wherein output signal indication is a short pulse generated when a difference is detected between responses by semiconductor device (DUT) to predefined stimulus and the predefined expected responses.

As to claims 10, 19, Lo disclosed (figs 1 - 3) a system wherein ate (62) is configured to repeatedly cycle said predefined stimulus from a starting point up a point of failure when such failure is detected

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4, 5, 14, 15, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Lo (US 6,462,814) in view of Lo et al (US 6,566,897).

As to claims 4, 5, 14, 15, 20, Lo disclosed (figs 1 - 3) a system for critical parameter analysis (CPA) of a semiconductor device (DUT, 12), comprising:

a focused optical beam scanning device (16, fig 3) for scanning and imaging the semiconductor device (DUT, 12) and for imparting light energy to illuminated portions of the semiconductor device (DUT, 12) during scanning,

automated test apparatus (ATE, 62, fig 1) for providing predefined stimulus to the semiconductor device (DUT, 12) and for comparing responses from the semiconductor device (DUT, 12) against a set of predefined expected responses,

and

a signal generator (test vectors, column 4 lines 46- 47) for providing an output signal indication when the automated test apparatus (ATE, 62) detects a difference between the responses from the semiconductor device (DUT) and the predefined expected responses, wherein said focused optical beam scanning device and said ATE are adapted such that both operate upon the semiconductor device simultaneously.

However, Lo is silent on the image converting means.

On the other hand, Lo et al teach image converting means for representing output from said focused optical beam scanning device (12) as a viewable video signal (84, 62) and for overlaying the output signal indication from the ATE on said viewable video signal', and display (62) means for viewing said video signal with overlaid ATE output signal indication.

It would have been obvious to one having an ordinary skill in the art at the time of the invention was made to add the viewable video signal for the purpose to observing the defected image.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Nguyen whose telephone number is (703) 306-5858. The examiner can normally be reached on M-F from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ramiz Nestor , can be reached on 571-272-2034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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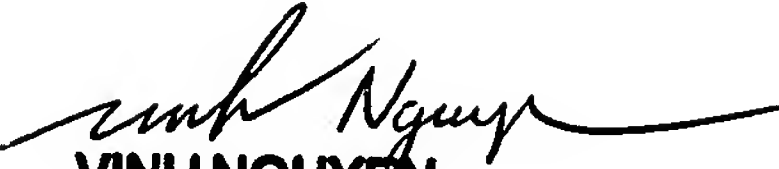
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you have questions on access to the Private PAIR system, contact the Electronic
Business Center (EBC) at 866-217-9197 (toll-free).

Jimmy Nguyen

2/16/2005


VINH NGUYEN
PRIMARY EXAMINER
A.U. 2829
02/22/05